

Appl. No. 10/715,559  
Amendment dated: December 11, 2006  
Reply to OA of: July 10, 2006

### **REMARKS**

This is in response to the Official Action of July 10, 2006 in connection with the above-identified application. Applicants have amended the claims of the instant application in order to more precisely define the scope of the present invention, taking into consideration the outstanding Official Action.

Applicants acknowledge with appreciation the courtesy of the interview extended the Applicant's representative by Examiner Menon, the Examiner in charge of this application. At the interview, Applicants' representative discussed the Dieu reference as applied to, e.g., the obviousness rejection of claims 1 and 13. Specifically, Applicants' representative noted that the ceramic filter disclosed in Dieu is used for separating cheese from whey. Applicants' representative urged that because the ceramic filter disclosed in Dieu is used to separate cheese from whey, and not for separating casein from milk and/or a target substance from a filtered solution, Dieu does not disclose the ceramic filter as claimed. Further, Applicants' representative argued that one of ordinary skill in the art would not look to Dieu for a teaching of a ceramic filter to be used in separating casein from milk and a target substance from a filtered solution. The Examiner responded it was his opinion that the ceramic filter of Dieu would be capable of separating components as claimed and changing the pore size of the membrane would be a matter of obvious optimization. Accordingly, no agreement was reached on this issue.

Applicants' representative also drew the Examiner's attention to the Mahmoud and Roesink references as applied to claim 21. Specifically, Applicants' representative noted that the teaching of Mahmoud regarding optimizing the molecular cut off weight of a filter is with respect to a dynamic filter and not a polysulfone hydrophilic filter as claimed. The Examiner responded that Mahmoud generally teaches optimizing the molecular weight cut off in a filter that would be applicable to all filters. Accordingly, no agreement was reached.

Applicants have amended the claims of the present application. Specifically, claim 13 has been amended to incorporate the subject matter of claim 14, and claim

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14 has been canceled. In light of this amendment, claim 25 has been amended to depend from claim 13 instead of now-canceled claim 14. Additionally, Applicants have amended claim 30 to incorporate the subject matter of claim 32, and claim 32 has therefore been canceled. Applicants respectfully submit that all claims now pending in the instant application are in full compliance with 35 U.S.C. §112.

The Official Action begins by objecting to claim 13 due to the fact that a © appears where a (c) should appear. Accordingly, Applicants have amended claim 13 to correct this typographical error. In light of this amendment, Applicants respectfully request that the objection to claim 13 be withdrawn.

The rejection of claims 1-5 and 8-10 under 35 U.S.C. 103(a), as being unpatentable over Denman et al. (US Pat. No. 5,756,687) in view of Dieu et al. (US Pat. No. 4,897,277) has been carefully considered but is most respectfully traversed in light of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to the basic requirements of a prima facie case of obviousness as set forth in the MPEP § 2143. This section states that to establish a prima facie case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Section 2143.03 states that all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an

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independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Applicants also most respectfully direct the Examiner's attention to MPEP § 2144.08 (page 2100-114) wherein it is stated that Office personnel should consider all rebuttal argument and evidence presented by applicant and the citation of In re Soni for error in not considering evidence presented in the specification.

The Official Action alleges that Denman discloses a method of filtering animal milk to separate casein comprising adjusting the pH of the milk to a pH of 5 and passing the milk through a filter and further urges that the operating pressure of the method is inherently disclosed in Denman. The Official Action acknowledges that Denman fails to expressly disclose a non-electric charged filtering membrane, but alleges that it would be obvious to use a ceramic membrane for filtration of milk proteins as taught in Dieu in the method of Denman in light of the various advantages associated with the use of a ceramic filter as disclosed in Dieu. Applicants respectfully traverse these allegations.

The Official Action alleges that Dieu discloses the use of a ceramic filter for filtering milk proteins. However, Applicants note that Dieu clearly states at, e.g., col. 3, lines 67 and 68, that the microfilter 8 separates cheese from whey. The separation of cheese from whey is not the same as filtering casein from milk as claimed in the instant application. Whey is defined as the liquid which separates from the solids when cheese is made, and therefore as disclosed in Dieu, the ceramic filter is used to separate solid cheese from liquid whey. Clearly the filtration of a liquid from a solid is distinct from separating a protein component of milk from milk. The separation of casein from milk requires much smaller pore size than would be required for separating a liquid from a solid. Accordingly, Applicants respectfully submit that, contrary to the allegation in the Official Action, Dieu fails to disclose use of a ceramic filter to separate milk protein from milk.

Because neither Dieu nor Denman disclose or suggest a ceramic filter used to separate casein from milk as recited in claim 1, Applicants respectfully submit that the references fail to properly establish a §103(a) rejection according to the guidelines set

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forth in MPEP §2143. Accordingly, Applicants respectfully request that the obviousness rejection of claims 1-5 and 8-10 over Denman and Dieu be withdrawn.

Furthermore, Applicants respectfully submit that one of ordinary skill in the art would not look to the Dieu references for teachings to modify the Denman method because the teachings of Dieu are directed to solving different problems. Dieu is directed to using a ceramic filter for separating liquid from solid, and not to the more difficult task of separating a milk protein from milk. The teaching of using a ceramic filter to separate cheese from whey would not be applied to a method of separating casein from milk because one of ordinary skill in the art would understand from the teaching of Dieu that a ceramic filter is able to separate liquid and solid components, but would not make the conclusion from the teaching of Dieu that the ceramic filter could be used to separate much finer components, i.e., a milk protein from a liquid.

Accordingly, Applicants respectfully submit that the Dieu reference cannot properly be combined with the Denman reference in order to establish a proper §103(a) rejection according to the guidelines set forth in MPEP §2143 and the obviousness rejection of claims 1-5 and 8-10 should therefore be withdrawn.

Applicants also contest the motivation statement provided in the Official Action. The Official Action cites col. 1, lines 35-57 of Dieu as disclosing various advantages associated with using a ceramic filter, and cite these advantages as the motivation for modifying Denman with the teaching of Dieu. However, careful review of this portion of the Dieu reference reveals that no advantages associated with using ceramic filters are disclosed. Rather, the cited portion of Dieu discloses the problems associated with organic semipermeable membranes. Dieu in no way discloses advantages associated with using a ceramic material and in no way does it allege that the problems caused by using a semipermeable membrane may be solved by using a ceramic membrane. The cited portion of Dieu falls well short of establishing that ceramic membranes have numerous advantages, and therefore the motivation statement provided in the Official Action is without support from the reference. For this reason, the §103(a) rejection of the claims is improper and should be withdrawn.

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With respect to the Denman reference, Applicants also note that a stabilizing agent is required in the method disclosed therein. In other words, in order to separate the component of interest from milk as disclosed in Denman, a stabilizing agent must be added such that the solubility of a component of interest is stabilized, which enables later processing steps on the milk without risking the loss of yield. For example, in the method disclosed in Denman, pH adjustment may be undertaken after addition of a stabilizing agent without significant loss of the biological activity of the component of interest.

To the contrary, the presently claimed method of separating casein from milk does not require a stabilizing agent. Rather, the present invention separates casein from milk through pH adjustment and subsequent filtration through a non-electrical charged filtering membrane. The addition of a stabilizing agent makes the method of Denman more complex and expensive, due to the additional step of adding a certain amount and concentration of stabilizing agent and the cost associated with supplying the stabilizing agent during the process. By avoiding the need for a stabilizing agent, the presently claimed method is clearly advantageous over the method of Denman. Because the method of Denman and the method claimed in the instant application are further differentiated in this manner, Applicants respectfully request that the §103(a) rejection of claims 1-5 and 8-10 be withdrawn.

The rejection of claims 6, 13-19, 22, 23 and 25-29 under 35 U.S.C. §103(a) as being unpatentable over Denman in view of Dieu as applied to claim 1 and further in view of Mahmoud et al. (US Pat. No. 6,051,268) and the rejection of claims 20, 21 and 30-32 under 35 U.S.C. §103(a) as being unpatentable over Denman in view of Dieu and Mahmoud as applied to claim 13 and further in view of Roesink et al. (US Pat. No. 4,798,847) have each been carefully considered but are most respectfully traversed in light of the amendments to the claims and the following comments.

As acknowledged in the Official Action, the basis for the rejection of claims 6, 13-19, 22, 23 and 25-29 is the allegation that Denman and Dieu disclose a method for separating casein from milk including passing milk through a non-electrical charged

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filtering membrane under the flow pressure of 10-20 psi and at a pH value of 5.0-6.5 as recited in claim 1. However, as discussed in detail above, Applicants respectfully submit that Denman and Dieu do not disclose all of the elements of claim 1 and therefore cannot properly support a §103(a) rejection according to the guidelines set forth in MPEP §2143.

Specifically, and as described in greater detail above, Applicants note that Dieu does not disclose a ceramic filtering membrane used to separate casein from milk. Rather, Dieu merely discloses the use of a ceramic filter to separate a liquid (i.e., whey) from a solid (i.e., cheese). This simple process is substantially different from separating casein from milk as claimed in the instant application and falls well short of the alleged teaching of separating milk protein from milk by using a ceramic filter.

Furthermore, Applicants respectfully submit that one of ordinary skill would not look to a teaching of using a ceramic membrane to filter whey from cheese when trying to improve a method of separating milk protein from milk as disclosed in Denman. To the contrary, Applicants respectfully submit that one of ordinary skill in the art would understand that the fact that a ceramic filter may be used to perform the relatively simple task of separating a solid from a liquid would in no way suggest that the filter could also be used to separate a milk protein component from milk.

Applicants also note the faulty motivation provided in the rejection of claim 1 and as discussed in detail above, as well as the requirement in Denman that a stabilizing agent be used/

In view of the above comments, Applicants respectfully submit that Denman and Dieu, either standing alone or when taken in combination, do not disclose or suggest each and every element of the claimed invention and therefore cannot properly serve as the basis for a §103(a) rejection of claims 6, 13-23 and 25-32.

Moreover, Applicants respectfully submit that neither secondary reference cited in the obviousness rejection, i.e., Mahmoud or Roesink, remedy the deficiency identified above with respect to the combination of Denman and Dieu. Mahmoud is relied upon as teaching multiple filtration steps including diafiltration and by molecular weight, while

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Roesink is relied upon as teaching a polysulfone hydrophilic membrane. Neither reference discloses using a ceramic filtering membrane to separate casein and other milk proteins from milk, and therefore the cited references fail to disclose each and every element of the claimed invention.

Because none of the cited reference, either standing alone or when taken in combination, disclose or suggest each and every element of the claims, Applicants respectfully submit that a proper §103(a) rejection of the claims according to the guidelines set forth in MPEP §2143 has not been established and the §103 rejections of claims 6, 13-23 and 25-32 should therefore be withdrawn.

In view of the above comments and further amendments to the claims favorable reconsideration and allowance of all of the claims now present in the application are most respectfully requested.

Respectfully submitted,

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